

## THE GENUS *PERITRECHUS* FIEBER (HEMIPTERA: RHYPAROCHROMIDAE) IN NORTH AMERICA

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**Abstract.**—The genus *Peritrechus* Fieber in North America is represented by five species, one of which *Peritrechus pilosulus* from California, Oregon and British Columbia is described as new. The species *P. saskatchewanensis* Barber is synonymized with *P. convivus* (Stål), the latter being naturally Holarctic. A key to the species of *Peritrechus* in North America is included. The Palearctic *P. oshanini* Kiritshenko is reinstated as a valid species.

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The genus *Peritrechus* Fieber, now placed in the tribe Rhyparochromini within the family Rhyparochromidae, is separable from the other two genera in the tribe in North America by the V-shaped pale mark in the apical part of the otherwise fuscous scutellum (Scudder, 1984). Walley (1929) provided a key to North American species. Lindberg (1958) reported an additional species to the Nearctic fauna, namely *P. distinguendus* (Flor) from Newfoundland, and considered it an introduced element. Subsequently, this species was synonymized with *P. convivus* (Stål) by Putschkov (1969). *Peritrechus convivus* was reported from the Yukon by Scudder (1997), from Alaska by Péricart (1999), and is listed from across Canada in Maw et al. (in press).

In this paper I synonymize *P. saskatchewanensis* Barber with *P. convivus*, describe a new species of *Peritrechus* from western North America, and provide synoptic notes to distinguish the other species in the Nearctic, as the previous original descriptions are not especially diagnostic. A revised key to the North American species of *Peritrechus* is presented. The identity of the Palearctic species *P. oshanini* Kiritshenko is clarified and it is reinstated as a valid species.

Measurements (in millimetres) given are mean and range (in parenthesis) for 10 specimens of each sex, taken from across the range in North America, unless otherwise stated.

### *Peritrechus convivus* (Stål)

*Rhyparochromus convivus* Stål 1858:180 (orig. descr.)

*Pachymerus distinguendus* Flor 1860:266 (new species) (syn. by Putschkov 1969)

*Trapezonotus convivus*, Stål 1862:200 (new combination)

*Trapezonotus distinguendus*, Fieber 1863:55 (new combination)

*Trapezonotus distinctus* Douglas & Scott 1863:145 (new species) (syn. by Reuter 1875)

*Peritrechus saskatchewanensis* Barber 1918:60 (new species) NEW SYNONYMY

*Peritrechus distinguendus*, Scudder 1957:244 (new combination)

*Peritrechus convivus*, Scudder 1957:245 (new combination)

*Peritrechus convivus*, Slater 1964:1251 (bibliogr.)

*Peritrechus distinguendus*, Slater 1964:1252 (bibliogr.)

*Peritrechus saskatchewanensis*, Slater 1964:1268 (bibliogr.)

*Peritrechus convivus*, Péricart 1999:215 (descript., distribution).

**Diagnosis.** *Dorsum.* Without pale upstanding setae; with short decumbent setae on anterior pronotal disc, base of scutellum and abdominal venter; corium more or less glabrous.

*Head.* Width ♂ 0.88 (0.85–0.90)<sup>1</sup>, ♀ 0.98 (0.92–1.07), vertex width ♂ 0.54 (0.53–0.55), ♀ 0.56 (0.53–0.60); antennae with second and third segments slender and parallel-sided throughout; usually with centre of second and/or third segments flavescent (but see below); antennal measurements ♂ 0.27 (0.26–0.28): 0.58 (0.57–0.60): 0.47 (0.45–0.48): 0.65 (0.63–0.67); ♀ 0.29 (0.25–0.33): 0.60 (0.55–0.70): 0.49 (0.43–0.53): 0.73 (0.70–0.74).

*Pronotum.* Usually at least twice as wide as long; lateral margins convergent anteriorly, mostly straight in middle and with a distinct narrow flange-like carina, this carina usually pale throughout; pronotal length less than width of scutellum; pronotal width ♂ 1.52 (1.47–1.57), ♀ 1.75 (1.60–1.92), pronotal length ♂ 0.76 (0.75–0.77), ♀ 0.83 (0.77–0.93). *Scutellum.* As wide as long, with punctures on apical half not particularly coarse, and not extending onto the flavescent arms of the V-shaped apical mark; scutellar width ♂ 0.94 (0.90–0.97), ♀ 1.10 (1.00–1.23), scutellar length ♂ 0.94 (0.90–0.97), ♀ 1.13 (1.10–1.23).

*Total body length.* ♂ 4.38 (4.33–4.50), ♀ 4.99 (4.65–5.60).

**North American material examined.** 2976 specimens. CANADA: Alberta, British Columbia, Manitoba, Newfoundland, New Brunswick, Nova Scotia, Northwest Territories, Ontario, Prince Edward Is., Quebec, Saskatchewan, Yukon. UNITED STATES: Alaska, Arizona, California, Colorado, Idaho, Montana, New Mexico, Oregon, Utah. MEXICO: Durango.

**Discussion.** This is a highly variable species. Specimens from arid areas appear paler and somewhat larger than those from humid areas. Specimens from northern latitudes and higher elevations are somewhat smaller and darker, with the antennal segments completely fuscous, the lateral pronotal carinae darkened, and the membrane more suffused with fuscous. This is true of material I have examined from Alaska and the Yukon. Specimens from over 3,000 m in Mexico are also small and dark.

After collecting specimens in British Columbia between 1959 and 1964, I examined the large collection of *P. convivus* from Russia in the Russian Academy of Sciences in St. Petersburg in 1965. At that time it appeared to me that *P. saskatchewanensis* was the same as *P. convivus*. However, I noted the considerable variation in this species. Between 1966 and 1998, I collected, obtained on loan, and studied material from across North America, and noted a similar size and colour variation. After measuring many hundreds of specimens and dissecting the male genitalia of samples from across the range in the Nearctic, I concluded that only a single, quite variable species was present, and that it was identical to *P. convivus*. Dr. I. M. Kerzhner has kindly compared some North American specimens with Russian material, and agrees that only a single species is involved. He notes (*in litt.*) the high

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<sup>1</sup> Measurements based on material from Alberta, British Columbia, Saskatchewan and Colorado.

variability in Palearctic material, with some southern specimens from Siberia and Kazakhstan having most of the second and third antennal segments yellow, and even the first segment more yellow-brown than black, but in some northern specimens all antennal segments are black or dark brown. No differences were found in the structure of the parameres, and the setae on the hind margin of the male genital capsule were variable. Exactly the same situation is found in the North American material. I thus believe only one species is involved and that is naturally Holarctic.

Although Putschkov (1969) reduced *P. oshanini* Kiritshenko to a subspecies of *P. convivus*, this status was queried by Péricart (1999). I find that *P. oshanini* is a distinct species, readily recognized by the setose upper surface. I thus resurrect it to specific status, and thank Dr. Kerzhner for confirming this and allowing me to make this change.

*Peritrechus oshanini* (Kiritschenko) sp. restor.

*Trapezonotus oshanini* Kiritshenko 1911:85 (orig. descr.)

*Peritrechus oshanini*, Scudder 1957:245 (new combination)

*Peritrechus convivus oshanini*, Putschkov 1969:294 (subspecies status)

**Discussion.** Péricart (1997) selected a male lectotype for *P. oshanini* from material in the Russian Academy of Sciences in St. Petersburg, with the data: 'Prov. Syrdariensis c. Perovsk, Baigakum pr. Dshulek, 30.v 08, D. Glazunov'. Dr. Kerzhner (*in litt.*) informs me that the type locality is a railway station about 100 km southeast of Kzyl-Orda (formerly Perovsk) in South Kazakhstan. I examined, what are now paralectotype specimens in the University of Helsinki, and in St. Petersburg in March and April 1965, and noted at that time that *P. oshanini* was similar to *P. convivus* in general appearance and coloration. The dorsum, except for the head, was non-shiny, and the second and third antennal segments were slender, parallel-sided, and pale in the middle. Like *P. convivus*, *P. oshanini* had a similar shaped pronotum, with laterally pale flange-like carinae, very evident on the anterior half, but fading out towards the humeral angles. The scutellum was as wide as long, and the tibiae pale. However, the setose dorsum is distinctive and diagnostic.

*Peritrechus fraternus* Uhler

*Peritrechus fraternus* Uhler 1871:103 (orig. descr.)

*Peritrechus fraternus*, Slater 1964:1254 (bibliogr.)

**Diagnosis.** *Dorsum.* Without pale upstanding setae; with short decumbent setae on anterior pronotal disc, base of scutellum and abdominal venter; corium more or less glabrous.

*Head.* Width ♂ 0.90<sup>2</sup> (0.87–0.93), ♀ 0.97 (0.92–1.07); vertex width ♂ 0.53 (0.52–0.57), ♀ 0.56 (0.53–0.60); antennae fuscous, with second and third antennal segments tending to be slender rather than robust and widening distally; antennal measurements ♂ 0.33 (0.30–0.34): 0.61 (0.58–0.67): 0.50 (0.48–0.53): 0.65 (0.60–0.70); ♀ 0.34 (0.33–0.37): 0.68 (0.60–0.73): 0.54 (0.50–0.57): 0.71 (0.67–0.74).

<sup>2</sup> Measurements based on material from Ontario, Quebec, Idaho and Connecticut.

*Pronotum.* Distinctly less than twice as wide as long; lateral margins convergent anteriorly, slightly impressed near middle, and usually with distinct lateral pale spots; without a distinct lateral carina; pronotal width ♂ 1.34 (1.25–1.43), ♀ 1.58 (1.45–1.67), pronotal length ♂ 0.78 (0.77–0.80), ♀ 0.85 (0.80–0.90). *Scutellum.* Longer than wide; punctures on apical half of scutellum coarse, and extending onto arms of pale V-shaped apical area; scutellar width ♂ 0.80 (0.77–0.87), ♀ 0.96 (0.83–1.07), scutellar length ♂ 0.99 (0.90–1.07), ♀ 1.12 (1.07–1.23).

*Total body length.* ♂ 4.31 (3.80–4.85), ♀ 4.89 (4.43–5.30).

**Material examined.** 402 specimens. CANADA: **British Columbia, Ontario, Quebec.** UNITED STATES: **California, Connecticut, Idaho, Oregon, Utah.**

**Discussion.** Slater (1964) lists this species from California, Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Massachusetts, Missouri, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, South Dakota, Utah, Lower California, Mexico, Alberta, British Columbia, Ontario and Quebec.

At the present time, I have included all the material from the western United States and British Columbia under *P. fraternus*, although I note that the late P. D. Ashlock in 1958 determined western specimens in the collection of the University of California, Berkeley as a new species.

Walley (1929) separated *P. fraternus* from *P. tristis* by the slender antennae, and relatively wider pronotum. My measurements suggest that the latter character is unreliable. The antennal character is also somewhat variable, but *P. fraternus* does have relatively more slender second and third antennal segments. In eastern specimens the second and third antennal segments are evidently more robust than in western specimens.

### *Peritrechus paludemaris* Barber

*Peritrechus paludemaris* Barber 1914:516 (orig. descr.)

*Peritrechus paludemaris* Slater 1964:244 (bibliogr.)

**Diagnosis.** *Dorsum.* Without pale upstanding setae; with short decumbent setae on anterior pronotal disc, base of scutellum and abdominal venter; corium with minute decumbent setae arising in punctures.

*Head.* Width ♂ 1.10, ♀ 1.20, vertex width ♂ 0.57, ♀ 0.57; ocelli prominent; antennae fuscous, the second and third segments robust, and thickly setose; second antennal segment slightly thicker apically, antennal measurements ♂ 0.43: 0.77: 0.60: 0.90; ♀ 0.47: 0.83: 0.63: 0.93.

*Pronotum.* Distinctly less than twice as wide as long; lateral margins convergent anteriorly slightly impressed near middle, and without distinct lateral carina; pronotal length about equal to width of scutellum; pronotal width ♂ 1.82, ♀ 2.03, pronotal length ♂ 1.00, ♀ 1.16. *Scutellum.* Longer than wide; punctures on apical half of scutellum coarse, and extending onto arms of pale V-shaped apical area; scutellar width ♂ 1.10, ♀ 1.17, scutellar length ♂ 1.37, ♀ 1.40.

*Total body length.* ♂ 5.45, ♀ 6.25.

**Material examined.** 3 specimens (including holotype). UNITED STATES: **New York.**



**Discussion.** This species, which is apparently confined to salt marshes in the East (Barber, 1918), is recognizable by its larger size, and lack of lateral pronotal carinae.

***Peritrechus pilosulus*, new species**

Fig. 1

**Description.** Male. *Dorsum.* With moderately long, dense, erect setae. Mostly dull and appearing frosted, except for head, legs and abdomen which are shiny. *Head.* Black, closely and shallowly punctate; head width 0.90 (0.88–0.93); vertex width 0.49 (0.47–0.50); antennae fuscous, fourth segment often brownish; second and third antennal segments with erect and semi-erect stiff setae, third antennal segment slender, not tapering apically or basally, and not thinner than base of second; antennal measurements 0.35 (0.33–0.37): 0.69 (0.67–0.73): 0.53 (0.50–0.57): 0.75 (0.73–0.80); rostrum reaching posterior coxae. *Pronotum.* Anterior two-thirds black and finely punctate, with area immediately behind head often vaguely pale ferruginous and coarsely punctate; posterior third of disc ochraceous to pale ferruginous, partly suffused with fuscous, and with large fuscous punctures; laterally pronotal disc tending to fuscous throughout and without a distinct pale spot at level of impression; lateral margin without a distinct pale narrow carina anteriorly, but slightly impressed behind middle; pronotal length about equal to width of scutellum; pronotal width 1.31 (1.27–1.38), pronotal length 0.80 (0.77–0.82). *Scutellum.* Fuscous, apical one-fifth with indistinct V-shaped dark ferruginous mark, and without lateral pale impunctate dashes; deeply and coarsely punctate throughout; scutellar width 0.80 (0.77–0.88), scutellar length 0.99 (0.95–1.02). *Hemelytra.* Ochraceous, but suffused with dark brown, especially on apical half of corium; inner half of corium often quite dark; clavus with about 9–14 punctures in single row between two rows of punctures closest to scutellum; corium rather deeply and closely punctate throughout; membrane hyaline and transparent, suffused with brown along corial margin, and between veins in apical half. *Legs.* Femora dark brown to black, with only apex slightly paler, coxae dark brown; fore trochanters flavescent; fore tibiae flavo-ferruginous, middle tibiae brown in basal four-fifths, flavescent apically; hind tibiae brown; fore femora with three larger anterior spines set equidistant along length of ventral field of smaller spines. *Thoracic pleura.* Dull and black; anterior margin of prosternum narrowly ferruginous; posterior margin of metapleura fuscous; coxal lamellae fuscous or at most dark ferruginous, at least at margins. *Abdomen.* Finely, shallowly and densely punctate, and setose. *Total body length.* 4.08 (3.90–4.23).

**Description.** Female. Colour and structure similar to male. *Measurements.* Head width 0.95 (0.87–1.00); vertex width 0.54 (0.52–0.57); antennal length 0.31 (0.30–0.38): 0.71 (0.63–0.78): 0.55 (0.50–0.60): 0.74 (0.67–0.80); pronotal width 1.41 (1.23–1.50); pronotal length 0.82 (0.73–0.88); scutellar width 0.90 (0.87–1.00), scutellar length 1.09 (1.03–1.20). *Total body length.* 4.45 (3.95–4.75).

**Types.** Holotype, ♂, UNITED STATES, **California**, Siskiyou Co., Macdoel, 6 mi S, 24.iii.1958, Joe Schuh (OSU). Allotype, ♀, data as holotype (OSU). Paratypes, UNITED STATES, **California**: 15 ♂, 16 ♀, data as holotype (OSU, Scudder Coll.); 1 ♀, id., edge of pond, 29.viii.1961 (OSU); 1 ♂, Siskiyou Co., Koebele Coll. (CAS); 1 ♀, Alameda Co., Koebele Coll. (CAS); 1 ♀, Alameda Co., i.90, Koebele Coll. (CAS); 1 ♂, Centra Costa Co., Alhambra Vall., 29.xii.1905, F. E. Blaisdell (CAS);

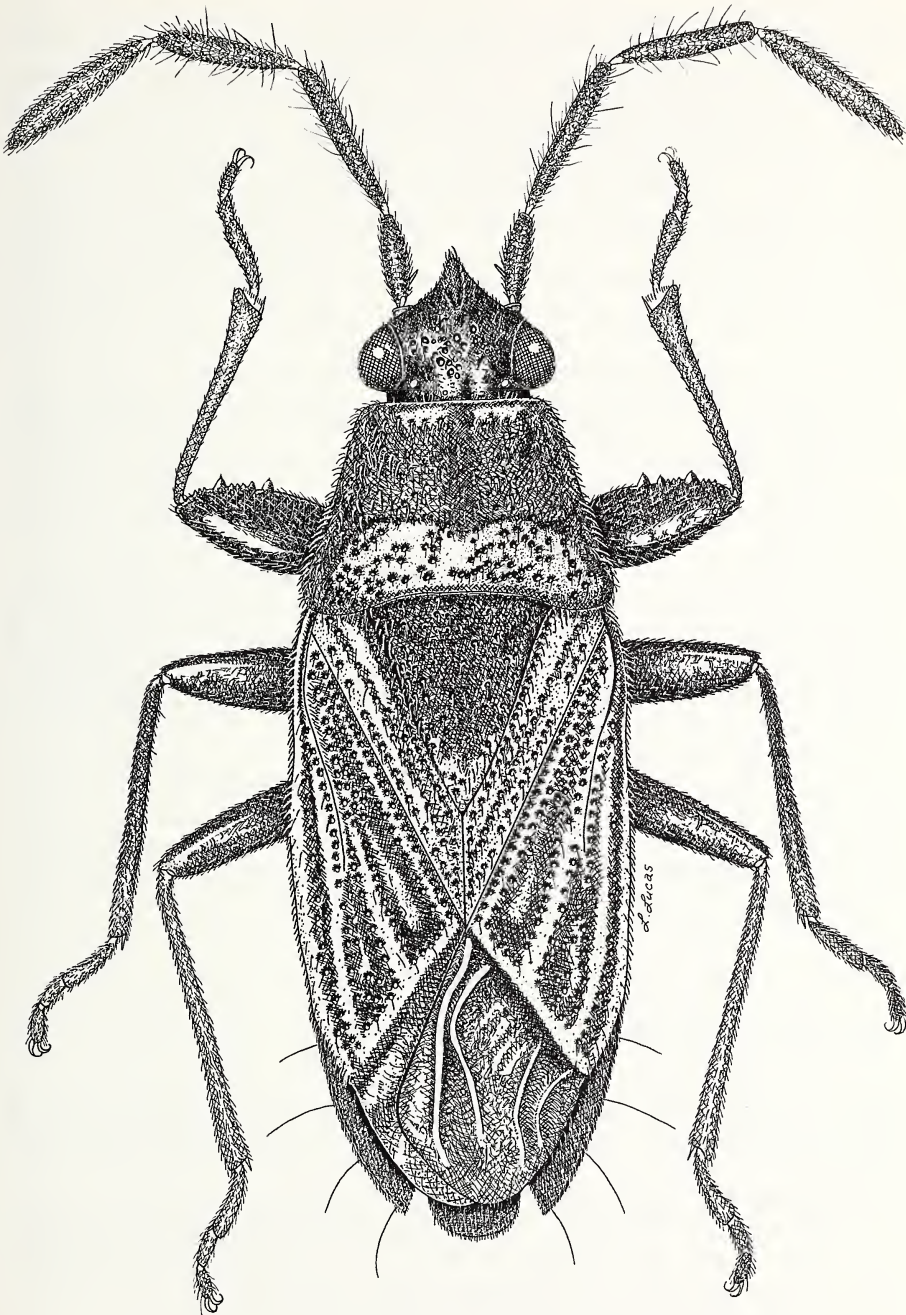


Fig. 1. *Peritrechus pilosulus* Scudder. Dorsal view. Male from USA, California, Siskiyou Co., 6 mi S, Macdoel.

1 ♂, Mt. Diablo Pk., 14.vii.1916, E. P. Van Duzee (CAS); 1 ♀, Oroville, 13.vii.1926, H. H. Keifar (CAS); 1 ♀, San Francisco Co., L. Merced, 19.v.1929, C. L. Fox (CAS); 1 ♀, San Mateo Co., Redwood City, 8.i.1944, P. H. Arnaud (CAS); 1 ♀, Winton, 22.xii.1949, R. P. Allen (UCB); 1 ♀, Colusa Co., Colusa, 15.viii.1955, R. O. Schuster (UCB); 1 ♀, Contra Costa Co., Walnut Cr., foot-Shelf Ridge, fluorescent 15 watt black light, 2.ix.1963, J. Powell (UCB); 2 ♀, Colusa Co., Williams, 6.viii.1964, P. Wells (UCB); 1 ♀, Plumas Co., Feather R., on flower, 4.ix.1970, Douglas Whitman Acc. No. A (UCB); 1 ♀, Sta. Barb. Co., Sta. Cruz Is., Christi Bch., 27.ix.1978, J. Powell (UCB). **Oregon:** 2 ♂, 4 ♀, Klamath Falls, under rock, 20.iv.1958, Joe Schuh (OSU); 1 ♂, Klamath Co., Devil's L., 4.v.1958, Joe Schuh (OSU); 2 ♂, 2 ♀, Klamath Co., Bly, 1 mi S, 4350', on ground, 22.v.1958, J. D. Lattin (OSU); 1 ♀, Klamath Co., Bly Mt., Beatty, 10 mi W, 5000', on ground, 22.v.1958, J. D. Lattin (OSU); 2 ♀, Jackson Co., Pinehurst, ½ mi E, 3350', on ground, 22.v.1958, J. D. Lattin (OSU); 1 ♂, 1 ♀, Wallowa Co., Enterprise, 18 mi N, 4860', roadside under rocks, 27.vi.1960, J. D. Lattin (OSU). **CANADA, British Columbia:** 2 ♀, Osoyoos IRI, 'Brights Winery', 119°32'W 49°13'N, *Purshia* assoc., AN, BGxh, pitfall trap, 6.v-2.vi.1994, G. G. E. Scudder (UBC); 1 ♂, Osoyoos IRI, 'Brights Winery', 119°32'W 49°13'N, *Purshia* assoc., AN, BGxh, pitfall trap, 8.vi-6.vii.1995, G. G. E. Scudder (UBC).

**Discussion.** *Peritrechus pilosulus* can be distinguished from other North American species of *Peritrechus* by the setose dorsum. It is separated from the Palaearctic *P. oshanini*, which is also dorsally setose, by the lack of carina to the pronotum, the less distinct pale mark on the scutellum, and by having the pronotal length about equal to the width of the scutellum. *Peritrechus oshanini*, like *P. convivus* has the pronotal length shorter than the width of the pronotum.

Most specimens of *P. pilosulus* have the hemelytra reaching to or virtually to the end of the abdomen. However, specimens from British Columbia have distinctly shortened hemelytra reaching only to the middle of tergum VII, and are somewhat smaller than average in total body length. They were collected in pitfall traps set in an antelope-brush (*Purshia tridentata* (Pursh) DC.) community in a bunchgrass ecozone with a stony-boulder substrate, covered by *Selaginella*.

#### *Peritrechus tristis* Van Duzee

*Peritrechus tristis* Van Duzee 1906:388 (orig. descr.)

*Peritrechus tristis*, Slater 1964:244 (bibliogr.)

**Diagnosis.** *Dorsum.* Without pale upstanding setae; with short decumbent setae on anterior pronotal disc, base of scutellum and abdominal venter; corium more or less glabrous.

*Head.* Width ♂ 0.87 (0.86–0.88), ♀ 0.92 (0.90–0.93); vertex width ♂ 0.51 (0.47–0.53), ♀ 0.54 (0.53–0.55); antennae fuscous, with second and third segments robust, being widest distally, and virtually as thick as fourth segment; antennal measurements ♂ 0.26 (0.23–0.28): 0.53 (0.50–0.57): 0.45 (0.43–0.48): 0.57 (0.53–0.58); ♀ 0.28 (0.27–0.30): 0.57 (0.56–0.58): 0.49 (0.47–0.50): 0.59 (0.58–0.60).

*Pronotum.* Distinctly less than twice as wide as long; lateral margins convergent anteriorly, slightly impressed near middle, and often without distinct lateral pale



spots; without a distinct lateral carina; pronotal width ♂ 1.26 (1.25–1.27), ♀ 1.37 (1.23–1.47), pronotal length ♂ 0.76 (0.75–0.77), ♀ 0.80 (0.73–0.83); pronotal length about equal to width of scutellum.

*Scutellum*. Longer than wide; punctures on apical half of scutellum coarse, and extending onto arms of pale V-shaped apical area; scutellar width ♂ 0.73 (0.67–0.77), ♀ 0.79 (0.73–0.83), scutellar length ♂ 0.85 (0.82–0.87), ♀ 0.93 (0.77–1.00).

*Total body length*. ♂ 3.81 (3.68–3.90), ♀ 4.03 (3.80–4.20).

**Material examined.** 295 specimens. CANADA: **British Columbia**. UNITED STATES: **California, Oregon**.

**Discussion.** Best distinguished by the small size and robust second and third antennal segments.

#### KEY TO NORTH AMERICAN SPECIES OF *PERITRECHUS*

1. Dorsum with dense, rather long, semi-erect pale setae; pale V-shaped mark at apex of scutellum obscure . . . . . *pilosulus* Scudder
- Dorsum without dense, rather long, semi-erect pale setae; pale V-shaped mark at apex of scutellum usually distinct . . . . . 2
2. Pronotum with distinct, narrow lateral carinae . . . . . *convivus* (Stål)
- Pronotum without distinct lateral carinae . . . . . 3
3. Male over 5.25 mm, female over 6.00 mm in length . . . . . *paludemaris* Barber
- Male under 5.00 mm, female under 5.5 mm in length . . . . . 4
4. Third antennal segment slender, parallel-sided and as wide as base of second antennal segment . . . . . *fraternus* Uhler
- Third antennal segment robust, widest in apical half, and wider than second antennal segment . . . . . *tristis* Van Duzee

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